Mock Analysis of Deer Mice Body Weight

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```r
# Load csv data
csv_data <- read.csv("mock_body_weight_data.csv")
head(csv_data)
```

```
##   mouse_id          city body_weight
## 1        1 San Francisco    24.74192
## 2        2 San Francisco    20.87060
## 3        3 San Francisco    22.72626
## 4        4 San Francisco    23.26573
## 5        5 San Francisco    22.80854
## 6        6 San Francisco    21.78775
```

```r
# Mock Data
mock_data <- data.frame(
  mouse_id = 1:80,
  city = rep(c("San Francisco", "Oakland", "San Jose", "San Rafael"), each = 20),
  body_weight = c(rnorm(20, mean = 22, sd = 2),
                  rnorm(20, mean = 21, sd = 2),
                  rnorm(20, mean = 23, sd = 2.5),
                  rnorm(20, mean = 20, sd = 1.8))
)

head(mock_data)
```

```
##   mouse_id          city body_weight
## 1        1 San Francisco    24.74192
## 2        2 San Francisco    20.87060
## 3        3 San Francisco    22.72626
## 4        4 San Francisco    23.26573
## 5        5 San Francisco    22.80854
## 6        6 San Francisco    21.78775
```

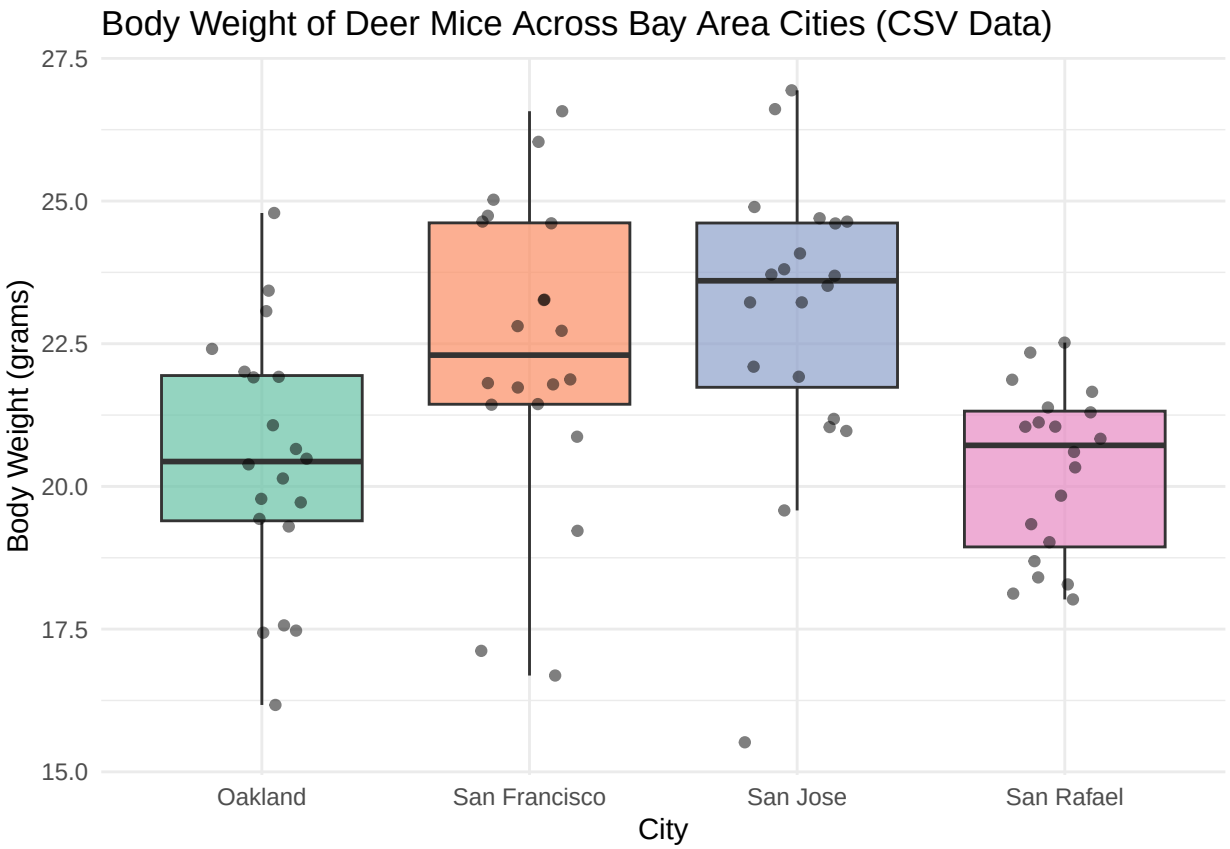
```r
# One-way ANOVA
anova_result_csv <- aov(body_weight ~ city, data = csv_data)
summary(anova_result_csv)
```

```
##              Df Sum Sq Mean Sq F value   Pr(>F)
## city          3  111.4   37.15   7.246 0.000244 ***
## Residuals    76  389.6    5.13
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```r
# Post hoc test
TukeyHSD(anova_result_csv)
```

```
##   Tukey multiple comparisons of means
##     95% family-wise confidence level
##
## Fit: aov(formula = body_weight ~ city, data = csv_data)
##
## $city
##                                diff         lwr        upr     p adj
## San Francisco-Oakland     1.9258236  0.04503137  3.8066159 0.0427195
## San Jose-Oakland          2.5397068  0.65891452  4.4204991 0.0036775
## San Rafael-Oakland       -0.1689351 -2.04972739  1.7118571 0.9953380
## San Jose-San Francisco    0.6138832 -1.26690911  2.4946754 0.8266414
## San Rafael-San Francisco -2.0947588 -3.97555102 -0.2139665 0.0229892
## San Rafael-San Jose      -2.7086419 -4.58943418 -0.8278496 0.0017140
```

```r
# Plot
ggplot(csv_data, aes(x = city, y = body_weight, fill = city)) +
  geom_boxplot(outlier.shape = NA, alpha = 0.7) +
  geom_jitter(width = 0.2, alpha = 0.5) +
  scale_fill_brewer(palette = "Set2") +
  labs(
    title = "Body Weight of Deer Mice Across Bay Area Cities (CSV Data)",
    x = "City",
    y = "Body Weight (grams)"
  ) +
  theme_minimal() +
  theme(legend.position = "none")
```


Body Weight of Deer Mice Across Bay Area Cities (CSV Data)
Body Weight (grams)
27.5
25.0
22.5
20.0
17.5
15.0
Oakland
San Francisco
San Jose
San Rafael
City